standard for a precocious diagnosis of osteoporosis and as the BMD decreases the osteoporotic fracture risk increases. The assessment and qualification of the bone microarchitecture evaluated by the trabecular bone score (TBS), which is determined from the grey-level variation analysis of the lumbar spine DXA images using the experimental variogram concept, quantifying local variations in pixels intensities. TBS is positively associated with trabecular density connections and negatively related with trabecular separations. It was shown that this innovative quantitative index qualifies the state of bone microarchitecture, independently of the bone density. In Portuguese populations, our group has already evaluated: 1. In men with hypogonadisms we detected low TBS, as compared with a control group. 2. the TBS with the BMD at L_1-L_4, as well as the correlation between the spine TBS and the BMD in women with one or more osteoporotic fractures and in women without fractures. The TBS was reduced in the osteoporotic fracture group but, however, there was an overlap of the BMD values in both groups, without a differentiation of women with and without osteoporotic fractures. 3. the relationship between the TBS and the vitamin D plasma levels in normal men and in postmenopausal normal women; the obtained data suggest that vitamin D levels could also play a main role on bone quality, as these results showed that low 25(OH)D concentrations tend to have low lumbar spine TBS and thus worst bone quality. 4. In a group of normal men, a correlation was detected between osteocalcin and TBS. Finally, the data of our studies suggest, that TBS may also be a very useful diagnostic tool which may supplement nicely the BMD measurements and improve osteoporosis management.

WPP01. VITAMIN D DEFICIENCY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Introduction: Vitamin D has multiple physiological functions in the human organism; including significant role in the regulation of the immune system. Nowadays vitamin D deficiency and insufficiency are widespread conditions and is associated with the pathogenesis of several autoimmune diseases including rheumatoid arthritis.

Objectives: To evaluate the frequency of vitamin D insufficiency and deficiency in patients with rheumatoid arthritis and its association with disease activity.

Methods: The study included 93 patients with rheumatoid arthritis, 74.2% were women. Mean age of women was (53.45 ± 11.16) and men. (53.29 ± 12.06) yr. old ($p > 0.05$). Mean duration of the disease was (8,59 ± 5,99) yrs. Subjects suffering from liver and kidney insufficiency and those who had received vitamin D in the previous 3 months have been excluded. Disease activity was assessed by DAS-28 score, joint pain degree, morning stiffness time and laboratory measures including ESR. The level of $25(OH)D_{total}$ was evaluated by electrochemiluminescence method (Elecsys 2010, Roche). Vitamin D deficiency was defined as a 25(OH)D below 20 ng/ml, and vitamin D insufficiency as 25(OH)D of 21–29 ng/ml.

Results: In patients with rheumatoid arthritis the frequency of vitamin D insufficiency and deficiency was 37.63 and 54.84% accordingly. 13.98% subjects with rheumatoid arthritis had severe vitamin D deficiency. 25(OH)D was associated with ESR level ($r = -0.26$; $p < 0.05$), DAS-28 ($r = -0.36$; $p = 0,001$), CRP ($r = -0.24$, $p < 0.05$), Hb ($r = 0.27$; $p = 0.01$). The risk of high disease activity is in patients with vitamin D deficiency (RR = 3.00 (95%CI: 1.01. 8.86, $p < 0.05$).

Conclusions: Vitamin D deficiency can be an important factor in worsening of rheumatoid arthritis. The effect of vitamin D supplementation is needed to determine if a causal relationship exists.

WPP02. THE LEVEL OF VITAMIN D IN PATIENTS WITHCHRONIC PERIODONTITIS

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Introduction: Recent studies discussed the possibility effects of vitamin D on chronic periodontitis. It's related to its effect on calcium metabolism, immune system and stimulation production of antimicrobial peptides. Many authors showed the presence of vitamin D deficiency and insufficiency, both in Ukraine and others European countries.

Objectives: To determine level of 25(OH)D ($25(OH)D_2 + 25(OH)D_3$) in patients with chronic periodontitis.

Methods: Study involved 198 patients with chronic periodontitis aged 18-68 years old. The diagnosis of chronic periodontitis was determined based on clinical and radiographic methods of investigation. The determination of 25(OH)D level was performed by Elecsys 2010 analyzer (Roche Diagnostics, Germany).

Results: This study shown that 73.7% of patients with chronic periodontitis had vitamin D deficiency (31.8%) and insufficiency (41.9%). Normal level of vitamin D had 26.3% patients with chronic periodontitis. Only 4.6% of subjects had severe deficiency. The mean level of vitamin D in patients with chronic periodontitis was 25.08 ± 10.1 ng/ml. There is no significant correlation between vitamin D levels in patients with severe (22.99 ± 7.49 ng/ml) and moderate (23.86 ± 9.46 ng/ml) periodontitis.

Conclusions: Most patients with chronic periodontitis have vitamin D deficiency and insufficiency. No significant correlation between vitamin D levels in patients with severe and moderate periodontitis was observed.

WPP03. THE WAYS OF VITAMIN D DEFICIENCY CORRECTION IN UKRAINE

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Introduction: Vitamin D deficiency (VDD) and insufficiency are widespread conditions. Only 4.6% of the Ukrainian citizens were found to have normal 25(OH)D values, whereas 81.8% were diagnosed with VDD. High incidence of vitamin D hypovitaminosis makes doctors to search for the ways of its effective treatment and prevention.

Methods: In cooperation with Ukrainian National University of Food Technologies high-fiber baked bread with a cholecalciferol concentration of 25 μg per 277 g was developed. To study its safety and efficacy in VDD correction, 30 postmenopausal women aged 45-80 years were examined. The study lasted for 21 days. Likewise, individual targeted therapy of vitamin D deficiency (ITTVD) was developed for correction of VDD. ITTVD consists of two phases – saturation period and maintenance period. The saturation therapy includes combined medication: calcium (1,000 mg) and 800 IU of vitamin D and an additional 3,000 IU of vitamin D per day. Maintenance therapy includes 2,000 IU of vitamin D per day. To study the efficacy and safety of ITTVD, 70 postmenopausal women aged 46-87 years with skeletal diseases were enrolled. Serum 25(OH)D level was assessed by electrochemiluminescent method (Elecsys 2010).

Results: Intake of fortified bread has facilitated a significant increase in serum 25(OH)D levels. The mean level of serum 25(OH)D increased from 14.20 ± 2.60 to 20.05 ± 2.74 ng/ml ($p < 0.001$) in women with VDD. 3 months of ITTVD leads to a significant ($p < 0.001$) increase in serum 25(OH)D levels: 35.60 ± 8.21 nmol/L as compared to baseline levels of 25.20 ± 9.76 nmol/l.

Conclusions: Based upon our results, ITTVD and fortified bread administration can be recommended for vitamin D correction in older age groups. Our ITTVD equation has proven to be effective.